

Patent
10007744-1

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of etching a substrate surface, comprising the steps of:

providing a silicon oxide hard mask on the substrate surface by masking a first portion of the substrate surface with a layer of phosphosilicate glass having edges that define boundaries on the substrate surface such that within the boundaries a second surface portion is exposed for etching;

~~masking a the first portion of the substrate surface with passivation material having edges that define boundaries on the substrate surface such that within the boundaries a second surface portion is exposed for etching;~~

depositing a metal layer over an entire top surface of the passivation material; and then

etching the second surface portion.

2. (Original) The method of claim 1 wherein the masking step includes depositing a layer of silicon nitride on the substrate surface and then depositing on the silicon nitride a layer of silicon carbide.

3. (Currently Amended) A method of etching a portion of a substrate surface, comprising the steps of:

providing a silicon oxide hard mask on the substrate surface by masking a first portion of the substrate surface with a layer of phosphosilicate glass having edges that define boundaries on the substrate surface such that within the boundaries a second surface portion is exposed for etching;

~~masking the first portion of the surface with passivation material having edges that define boundaries of the surface portion such that within the boundaries the surface portion is exposed for etching;~~

depositing a metal layer over an entire top surface of the passivation material; and then

etching the second surface portion; and

fabricating on the substrate drop generator layers that provide for controlled expulsion of liquid from the substrate, and wherein the step of masking with the passivation material

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includes the simultaneous deposition of the passivation material at a location away from the exposed surface portion to enable use of some of the passivation material as one of the drop generator layers as well as the mask.

4. (Canceled)

5. (Currently Amended) A method of etching a substrate surface, comprising the steps of:

fabricating on the substrate drop generator layers that provide for controlled expulsion of liquid from the substrate;

providing a silicon oxide hard mask on the substrate surface by masking a first portion of the substrate surface with a layer of phosphosilicate glass having edges that define boundaries on the substrate surface such that within the boundaries a second surface portion is exposed for etching;

~~masking a the first portion of the substrate surface with passivation material having edges that define boundaries on the substrate surface such that within the boundaries a second surface portion is exposed for etching;~~

depositing a metal layer over an entire top surface of the passivation material; and then

etching the second surface portion;

wherein the step of covering the passivation material with the metal layer includes the simultaneous deposition of the metal layer at a location away from the exposed surface portion to enable use of some of that metal layer as one of the drop generator layers.

6.-20. (Canceled)

21. (Previously Presented) The method of claim 1 wherein the masking step includes depositing the passivation material on the substrate surface.

22. (Previously Presented) The method of claim 21 including the step of etching the second portion while the passivation material is on the substrate surface, wherein etching the second portion causes the formation of a trench having angled side walls.

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23. (Currently Amended) A method of etching a substrate surface comprising:
fabricating, on a substrate, a drop generator component that provides for controlled
expulsion of liquid;

providing a silicon oxide hard mask on the substrate surface by masking a first portion
of the substrate surface with a layer of phosphosilicate glass at interfaces between the first
portion and a second portion of the substrate surface;

depositing a passivation material on a the first portion of the substrate surface and
subsequently removing a portion of the deposited passivation material from a the second
portion of the substrate surface within the first portion, such that the second portion is free of
passivation material;

depositing a metal layer over the passivation material; and
etching the second portion.

24. (Previously Presented) The method of claim 23 wherein depositing the
passivation material comprises depositing a layer of silicon nitride on the first portion and
then depositing on the silicon nitride a layer of silicon carbide.

25. (Previously Presented) The method of claim 23 wherein depositing the
passivation material includes simultaneous deposition of the passivation material at a location
away from the first portion to enable use of some of the passivation material at the locations
other than the first and second portions as the drop generator component.

26. (Canceled)